MATERIAL SAFETY DATA SHEET

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SECTION 1 - GENERAL INFORMATION

Product Name – AQUASIL BP SN

Common Name - Inhibited Aluminum Paste

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HMIS RATING

Health	2*
Flammability	3
Reactivity	1

* - See Section 8 for chronic effects

SECTION 2 - HAZARDOUS INGREDIENTS

Ingredients	CAS Number	Percent range by weight for products in this category	Exposure Limits
Aluminum Flake	7429-90-5	50 - 70	15 mg/m^3 - OSHA PEL 10 mg/m^3 - ACGIH TLV-TWA
Stoddard Solvent	8052-41-3		2900 mg/m^3 (500 ppm) - OSHA PEL 525 mg/m^3 (100 ppm) - ACGIH TLV
OR		10-20	
Aliphatic Solvent	64742-48-9 (a/k/a 64742-47-8)		1200 mg/ m^3 (197 ppm) – supplier recommendation
Nitroethane	79-24-3	5 - 15	307 mg/ m^3 (100 ppm) - OSHA PEL 307 mg/ m^3 (100 ppm) - ACGIH TLV
Glycol Ether	Trade Secret	5 - 15	Not Established
Surfactant	Trade Secret	1 - 10	Not Established
Inhibitor	Trade Secret	1 - 10	Not Established

SECTION 3 - PHYSICAL PROPERTIES

Evaporation Rate of Solvents at 1 ATM & 77°F (n-Butyl Acetate = 1)	Stoddard Solvent - <0.1, Aliphatic Solvent – 0.18, Nitroethane - 1.21, Glycol Ether - 0.3
Vapor Density of Solvents (Air = 1)	Stoddard Solvent - 4.8, Aliphatic Solvent – 4.9, Nitroethane - 2.58, Glycol Ether - 4.6
Vapor Pressure of Solvents at 77°F	Stoddard/Aliphatic Solvent -<10 mmHg, Nitroethane - 15.6 mmHg, Glycol Ether - 1.9 mmHg
Percent Volatile by Weight at 1 ATM & 77°F	Same as solvents in Section 2
Specific Gravity of Paste	1.38 - 1.81
Physical Form - Semisolid	Color - Silver Odor - Ethereal Alcohol

SECTION 4 - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT - 87°F (31°C) Minimum (Method - Setaflash)
FLAMMABLE OR EXPLOSIVE LIMITS OF SOLVENTS IN AIR (Approximate)
Lower Explosive Limit (LEL) - 0.8%
Upper Explosive Limit (UEL) - 7.0%
EXTINGUISHING AGENTS

Use Class B extinguisher, inert granular material like dry sand, Class D extinguisher with low velocity nozzle, Class D extinguishing agent, regular protein foam or AFFF. **DO NOT** use a water hose stream, **DO NOT** use halogenated extinguishing agents like halon or Carbon Tetrachloride. (See Section 5 - Reactivity Information).

FIRE FIGHTING PROCEDURES

When closed containers are exposed to excessive heat, there is the possibility of pressure buildup inside the container. This could result in the rupture of the container. Use a water fog to keep fire-exposed containers cool.

Dense smoke may be generated while burning. Minimize breathing gases, vapors, fumes or decomposition products during a fire. Trained fire fighters should use supplied-air breathing apparatus for enclosed or confined spaces, or as needed. Aluminum fire may react with water to form hydrogen gas. Hydrogen gas is flammable and explosive.

When fighting a fire involving aluminum paste, **DO NOT USE A WATER HOSE STREAM. DO NOT USE HALOGENATED EXTINGUISHING AGENTS.** Aluminum particles suspended in air may form an explosive mixture; avoid any disturbance which could cause a dust cloud, such as directing water streams or gas propelled fire extinguishers into the burning material. Direct the Class B extinguishing agent, such as dry chemical, above the fire to rain down on the burning material. Care should be used when applying a Class B extinguishing agent because some agents can accelerate a fire where most of the solvent in the paste has been consumed and the aluminum flake has started to burn. If the extinguishing agent is carefully applied, it will be very evident if it accelerates the fire. If it does, or if the fire at some point has the appearance of metal burning with a bright, whitish glow, do not attempt to extinguish it. Isolate the fire by ringing it with dry, inert granular material, or Class D extinguishing agent then let it alone. Allow the material to become cold prior to disposal, because if the metal has ignited, it may continue to burn under a crust without flames.

SECTION 5 - REACTIVITY INFORMATION

Material is stable under normal conditions.
Hazardous polymerization will not occur.
Conditions to avoid: Smoking, open flames, sparks and other sources of ignition and heat.
Materials to avoid: Some acids, some caustics, halogenated hydrocarbons, lead, copper, dehydrating agents and oxidizers.
Thermal Decomposition Products: Smoke, carbon monoxide, carbon dioxide, aluminum oxide, ammonia, nitrogen oxides, sulfur dioxide, hydrogen sulfide and phosphorous oxide.
Aluminum flake can react with some acid and caustic solutions to form hydrogen gas and heat.

REACTION WITH:

AIR - As a paste there is no reaction and minimal hazard. If the paste dries out, the resulting aluminum flake, when disturbed, could form a dust cloud. This dust cloud could explode if a spark or outside source of ignition is present.

WATER - Aluminum flake may react with water to slowly generate hydrogen gas and heat. This reaction can be especially hazardous in confined space like a sealed drum, because of the buildup of pressure.

HEAT - The solvents will evaporate, and give off ignitable vapors if the solvents' temperature is above the solvents' flash point. Also, dried out aluminum paste presents the explosion hazard mentioned above.

HALOGENATED HYDROCARBONS - Aluminum flake can react violently with halogenated hydrocarbons, including halogenated fire extinguishing agents.

OXIDIZERS - Aluminum paste can react with oxidizers to produce heat. The stronger the oxidizer, the more violent the reaction and the more heat generated.

SECTION 6 - PERSONAL PROTECTION

VENTILATION - Use general dilution type, adequate to keep vapor concentrations below the TLV's or LEL listed in Sections 2 and 4.
RESPIRATOR PROTECTION - If vapor and/or dust concentrations are at or above the allowable exposure limit, wear a NIOSH approved air purifying (chemical cartridge) respirator suitable for organic vapors and/or particulates. In confined spaces, or where vapor concentrations could exceed 1000 ppm, use supplied-air respirator or self-contained breathing apparatus with full face-piece.
PROTECTIVE GLOVES - Use chemical resistant gloves.
EYE PROTECTION - Use eye goggles to prevent the possibility of eye contact through splashing.
OTHER PROTECTIVE EQUIPMENT - Use chemical resistant apron if splash hazard exists. Use protective hand creams of skin areas that come in contact with paste if irritation occurs.

SECTION 7 - SPECIAL PRECAUTIONS

HANDLING PRECAUTIONS - Avoid spillage and the creation of airborne aluminum dust. Use nonsparking metal tools to transfer. All equipment should be electrically grounded. Minimize breathing of vapors. Avoid prolonged or repeated skin contact. Wash up with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse.

STORAGE PRECAUTIONS - Do not store or use in areas of excess water vapors, contaminating vapors or gases. Do not store near oxidizers or combustible material. Keep containers closed when not in use.

OTHER PRECAUTIONS - Vehicles in the area should have nonsparking wheels. Where appropriate, install electrical equipment suitable for use in hazardous atmospheres in accordance with the National Electrical Code.

SECTION 8 - HEALTH HAZARD INFORMATION

TOXICITY DATA

ALIPHATIC AND STODDARD SOLVENT - Oral LD50 rat >5000 mg/kg (essentially nontoxic)
Dermal LD50 rabbit >3160 mg/kg (slightly toxic)
ALUMINUM - None. No toxic effects are known.
NITROETHANE - Oral LD_{50} rat = 1100 mg/kg (slightly toxic)
INHIBITOR AND GLYCOL ETHER - Not Established.
SURFACTANT - Oral LD_{50} rat = 3540 mg/kg (slightly toxic)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE AND ROUTES OF ENTRY

EYE CONTACT - Paste contacting the eyes may cause irritation. High solvent vapor concentrations (greater than approximately 1000 ppm) are irritating to the eyes.

SKIN CONTACT - Due to the solvent in this product, prolonged or repeated skin contact with the paste tends to remove skin oils possibly causing irritation and dermatitis.

INHALATION - High solvent vapor concentrations (greater than approximately 1000 ppm) are irritating to the respiratory tract, may cause dizziness and headaches, are anesthetic and may have other central nervous system effects.

INGESTION - **DO NOT INGEST.** The aluminum, surfactant and inhibitor are nontoxic and the solvents are only slightly toxic by oral ingestion. However, minute amounts of the solvents aspirated into the lungs, if ingested, may cause severe pulmonary injury or death.

CHRONIC EFFECTS - Not listed as a carcinogen by NTP, IARC or OSHA. Laboratory animal studies have shown that prolonged and repeated inhalation exposure to light hydrocarbon vapors in the same naphtha boiling range as Stoddard Solvent can produce adverse kidney effects in male rats. However, these effects were not observed in similar studies with female rats and male and female mice, and in lim studies with other animal species. Additionally, in a number of human studies, there was no clinical evidence of such effects at normal occupational levels. It is therefore highly unlikely that the kidney effects observed in male rats have significant implications for humans exposed at or below the recommended vapor limits in the workplace.

SECTION 8 CONTINUED

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT - Flush with plenty of low pressure water for 15 minutes, occasionally lifting eye lids. If irritation persists, consult a physician.

SKIN CONTACT - Remove contaminated clothing and launder before reusing. Do not reuse leather and absorbent shoes. Wash skin with mild soap and water and apply a good quality hand cream. If irritation persists, consult a physician.

INHALATION - Remove from contaminated area to fresh air. If unconscious, keep breathing passage open. If breathing is irregular or has stopped, start resuscitation. Administer oxygen if available. Get medical help as situation dictates.

INGESTION - **DO NOT** induce vomiting. Call a physician or get to professional medical help immediately.

SECTION 9 - SPILL, LEAK, DISPOSAL AND REGULATORY INFORMATION

STEPS TO BE TAKEN IF THE MATERIAL IS SPILLED OR RELEASED - Avoid exposure to vapors. Wear proper personal protective equipment. Remove all sparks, flames and other sources of ignition from the area and allow any hot surfaces in the area to cool. Use nonsparking metal tools and natural bristle broom. Repack uncontaminated paste in a dry container. Seal container tightly. Check for quality. Dispose of contaminated material or waste.

WASTE DISPOSAL - Aluminum paste is a hazardous waste as defined in 40 CFR 261 with a hazardous waste number of D001 (ignitable). Waste aluminum paste should be transported and disposed of by a permitted hazardous waste transportation and disposal company in accordance with all applicable federal, state and local laws.

EMPTY CONTAINERS - Empty containers of aluminum paste contain a residue of paste and should not be reused. Do not use a cutting torch on, and do not weld on, empty metal containers. Empty drums should be crushed and/or recycled or be disposed of by a permitted waste disposal company in accordance with all applicable federal, state and local laws.
ENVIRONMENTAL REGULATIONS - Aluminum (fume and dust) and 1,2,4 Trimethylbenzene (as 3-4% of Stoddard Solvent) are listed under Section 313 of SARA Title III.
DOT/UN HAZARD CLASSIFICATION - Flammable Solid, organic, n.o.s. (nitroethane), 4.1, UN1325, PGII
TSCA (US) STATUS - All ingredients found in this product appear on the TSCA Inventory.
DSL (CANADA) STATUS - All ingredients found in this product appear on the DSL Inventory.
EINECS (EUROPE) STATUS - All ingredients found in this product appear on the EINECS Inventory.
AICS (AUSTRALIA) STATUS - All ingredients found in this product appear on the AICS Inventory

SECTION 10 - FURTHER INFORMATION

- Aluminum Association's Bulletin TR-2
  "Recommendations for Storage and Handling of Aluminum Powders and Paste."

- National Fire Protection Association's NFPA-484
  "Standard for Combustible Metals"

The information provided is based upon data furnished by our suppliers and data determined by us in our facilities at the time this product was formulated. While believed to be reliable, the information and products are intended for use by skilled persons at their own risk. Users should make their own investigation to determine suitability of the information or products for their own particular purposes. Seller assumes no responsibility to Buyer for events resulting or damages incurred from their use.

The Hazardous Materials Identification System (HMIS) has been included by Silberline Manufacturing Co., Inc. in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developer of this rating system and suppliers of Silberline's raw materials, together with Silberline's interpretation of the available data.